

Title (en)

EMERGENCY RESIDUAL HEAT REMOVAL AND WATER REPLENISHING SYSTEM FOR NUCLEAR POWER PLANT

Title (de)

NOTRESTWÄRMEABFUHR- UND WASSERNACHFÜLLSYSTEM FÜR KERNKRAFTWERKE

Title (fr)

SYSTÈME D'ÉLIMINATION DE CHALEUR RÉSIDUELLE ET DE RÉAPPROVISIONNEMENT EN EAU EN SITUATION D'URGENCE POUR CENTRALE NUCLÉAIRE

Publication

EP 4325521 A1 20240221 (EN)

Application

EP 21932442 A 20210630

Priority

- CN 202110330768 A 20210326
- CN 2021103419 W 20210630

Abstract (en)

The present invention provides an emergency residual heat removal and water replenishing system for a nuclear power plant including: three columns of mutually independent cooling series (10), an ultra-large-sized modular cooling water tank (40), a set of control and alarm systems, and an auxiliary monitoring instrument, wherein the water capacity of the ultra-large-sized modular cooling water tank (40) at least can meet the removal of heat of a primary loop within 72 hours after an accident occurs, and the cooling water tank (40) is connected to an emergency water supply system and a spent fuel pool, so as to replenish the emergency water supply system and the spent fuel pool with water when needed; the three columns of cooling series (10) share the ultra-large-sized modular cooling water tank (40) as a final heat trap of condensers (14) of the three columns of cooling series (10), thereby realizing the passive residual heat removal at secondary sides of steam generators (90) when the emergency water supply system is not available; and the bottom of the ultra-large-sized modular cooling water tank (40) is provided with sinking compartments, and the condensers (14) of the three columns of cooling series (10) are respectively located in different sinking compartments. The emergency residual heat removal and water replenishing system for a nuclear power plant can completely meet the requirement for removing heat released by nuclear fuel within 72 hours, thereby improving the capability and safety of the nuclear power plant in coping with an accident condition.

IPC 8 full level

G21C 15/18 (2006.01)

CPC (source: CN EP)

G21C 15/02 (2013.01 - CN); **G21C 15/18** (2013.01 - CN EP); **G21D 3/04** (2013.01 - EP); **Y02E 30/30** (2013.01 - EP)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

EP 4325521 A1 20240221; CN 113140338 A 20210720; WO 2022198826 A1 20220929

DOCDB simple family (application)

EP 21932442 A 20210630; CN 202110330768 A 20210326; CN 2021103419 W 20210630